

Claims:

- 5 1. A method to select a bearer service for communication between a mobile terminal (MT1) and a mobile network (NW1), in which method at least one bearer service is implemented in the mobile network (NW1), **characterised** in that the method comprises at least the following steps:
- defining a set of requirements for the bearer service to be selected for communication,
 - 10 – obtaining information about selectable bearer services,
 - comparing said set of requirements for the bearer service and said obtained information about selectable bearer services, and
 - making a decision to accept or reject at least one of said selectable bearer services for communication based on said comparison.
- 15 2. A method according to claim 1, in which an application is executed in the mobile terminal (MT1), **characterised** in that said set of requirements for the bearer service to be selected for communication is defined at least on the basis of properties of said application.
- 20 3. A method according to claim 1 ~~or 2~~, **characterised** in that said set of requirements for the bearer service to be selected for communication is defined at least on the basis of properties of the mobile terminal (MT1).
- 25 4. A method according to claim 1, ~~2 or 3~~, **characterised** in that said set of requirements for the bearer service to be selected for communication is defined at least on the basis of user preferences.
- 30 5. A method according to any of claims ~~1—4~~, ¹ **characterised** in that there is user subscription information stored in the mobile network (NW1), wherein in the method said set of requirements for the bearer service to be selected for communication is defined at least on the basis of properties of said user subscription information.
- 35 6. A method according to any of claims ~~1—5~~, ¹ **characterised** in that traffic capacity of the mobile network (NW1) is limited, wherein in the method said set of requirements for the bearer service to be selected

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for communication is defined at least on the basis of traffic situation of the mobile network (NW1).

5 7. A method according to any of claims ~~1-6~~¹, **characterised** in that there is user subscription information stored in the mobile network (NW1), wherein in the method the bearer service to be selected for communication is accepted or rejected at least on the basis of properties of said user subscription information.

10 8. A method according to any of claims ~~1-7~~¹, **characterised** in that traffic capacity of the mobile network (NW1) is limited, wherein in the method the bearer service to be selected for communication is accepted or rejected at least on the basis of traffic situation of the mobile network (NW1).

15 9. A method according to any of claims ~~1-8~~¹, **characterised** in that said comparison is performed in the mobile network (NW1).

20 10. A method according to any of claims ~~1-8~~¹, **characterised** in that said comparison is performed in the mobile terminal (MT1).

25 11. A method according to any of claims ~~1-10~~¹, **characterised** in that there is at least one quality of service class defined in the mobile network (NW1), that for at least one quality of service class there is implemented at least one bearer service, and that for an application to be executed a preferred quality of service class is defined.

30 12. A method according to any of claims ~~1-11~~¹, **characterised** in that the method comprises further the steps of:

- 35 – forming a bearer service request network message on the basis of said set of requirements for the bearer service to be selected for communication in the mobile terminal (MT1),
- sending said bearer service request network message to the mobile network (NW1),
- forming a bearer service reply network message on the basis of said selectable bearer services and said bearer service request network message in the mobile network (NW1), and

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13. A method according to any of claims 1—12, **characterised** in that in the method a renegotiation phase is carried out, which renegotiation phase comprises at least steps of:

14. A method according to any of claims 1-12, **characterised** in that in the method a renegotiation phase is carried out, which renegotiation phase comprises at least steps of:

- defining a new set of requirements for the bearer service to be selected for communication in the mobile terminal (MT1),
- forming a bearer service request network message on the basis of the new set of requirements for the bearer service to be selected for communication,
- sending said bearer service request network message to the mobile network (NW1),
- forming a bearer service reply network message on the basis of said bearer service request network message and said obtained information about bearer services selectable in the mobile network (NW1),

wherein a decision to accept or reject a bearer service for communication is made based on said comparison in the mobile network (NW1).

- forming in the mobile network (NW1) a conditions changed network message on the basis of the changed conditions, in which network message a new bearer service is suggested,

wherein one of the following steps is performed in the mobile terminal (MT1):

- accepting the new bearer service, if said new bearer service fulfils requirements for the bearer service, wherein the communication between said mobile terminal (MT1) and said mobile network (NW1) in connection with execution of said application is continued with said new bearer service, or

- rejecting the new bearer service, if said new bearer service does not fulfil requirements for the bearer service, wherein the communication between said mobile terminal (MT1) and said mobile network (NW1) in connection with execution of said application is stopped.

16. A method according to any of claims 1-15, **characterised** in that in the method a renegotiation phase is carried out for selecting a new bearer service when conditions of the mobile network (NW1) have changed, which renegotiation phase comprises at least the steps of:

- forming in the mobile network (NW1) a conditions changed network message on the basis of the changed conditions,

- sending said conditions changed network message to the mobile terminal (MT1),

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- wherein one of the following steps is performed in the mobile network (NW1):

- 10 – accepting the new bearer service, if said new bearer service fulfils requirements for the bearer service, wherein the communication between said mobile terminal (MT1) and said mobile network (NW1) in connection with execution of said application is continued with said new bearer service, or
- 15 – rejecting the new bearer service, if said new bearer service does not fulfil requirements for the bearer service, wherein the communication between said mobile terminal (MT1) and said mobile network (NW1) in connection with execution of said application is stopped.

17. A method according to any of claims 1-16, **characterised** in that there is provided an execution environment and a bearer service selection application programming interface in the mobile terminal (MT1), and that said bearer service selection application programming interface is used in communication between at least one application and said execution environment.

18. A method according to any of claims 1-17, **characterised** in that there is provided means (402) for obtaining information about the capabilities of the mobile terminal (MT1).

19. A method according to any of claims 1—18, **characterised** in that there is provided means (404) for obtaining information about user preferences.

35 20. A method according to any of claims 1-19, **characterised** in that the user of the mobile terminal (MT1) is informed of the selectable bearer services, wherein the user can perform the selection of the bearer service.

21. A method to select a bearer service for communication between at least two mobile terminals (MT1, MT2), in which communication is established with a mobile network (NW1), **characterised** in that the method comprises at least the following steps:

- defining a set of requirements for the bearer service in the first mobile terminal (MT1),
 - obtaining information about selectable bearer services in the mobile network (NW1),
 - comparing said set of requirements for the bearer service and said obtained information about bearer services selectable in the mobile network (NW1), and
 - making a decision to accept or reject at least one of said selectable bearer services for communication between the first mobile terminal (MT1) and the mobile network (NW1) based on said comparison,
- wherein, if at least one bearer service is accepted for communication between the first mobile terminal (MT1) and the mobile network (NW1), the following steps are performed:

- sending information about the accepted bearer service to the second mobile terminal (MT2),
- examining, if the accepted bearer service can be used in communication with the second mobile terminal (MT2) and the mobile network (NW1),

wherein, if a bearer service is accepted for communication between the second mobile terminal (MT2) and the mobile network (NW1), a communication is set up between the mobile terminals (MT1, MT2) and the mobile network (NW1), in which communication the accepted bearer service is used.

22. A method according to claim 21, **characterised** in, that if the bearer service accepted for communication between the first mobile terminal (MT1) and the mobile network (NW1) is not accepted for communication between the second mobile terminal (MT2) and the mobile network (NW1), selection of a new bearer service is initiated by the first mobile terminal (MT1).

23. A method according to claim 21, **characterised** in, that if the bearer service accepted for communication between the first mobile terminal (MT1) and the mobile network (NW1) is not accepted for communication between the second mobile terminal (MT2) and the mobile network (NW1), the second mobile terminal (MT2) proposes another bearer service to be accepted for communication.

24. A method according to claim 21, **characterised** in, that if the bearer service accepted for communication between the first mobile terminal (MT1) and the mobile network (NW1) is not accepted for communication between the second mobile terminal (MT2) and the mobile network (NW1), communication is terminated between the second mobile terminal (MT2) and the mobile network (NW1).

25. A method to select a bearer service for communication between at least two mobile terminals (MT1, MT2), in which method the first mobile terminal (MT1) is communicating with one mobile network (NW1), and the second mobile terminal (MT2) is communicating with a second mobile network (NW2), **characterised** in that the method comprises at least the following steps:

- selecting a bearer service for communication between the first mobile terminal (MT1) and the first mobile network (NW1) ,
- examining, if the selected bearer service can be used in communication between the second mobile terminal (MT2) and said second mobile network (NW2),
- sending a reply to the first mobile terminal (MT1) based on the result of the examination,

wherein, if the selected bearer service is accepted for communication between the second mobile terminal (MT2) and the second mobile network (NW2), a communication is set up between the mobile terminals (MT1, MT2) and said mobile networks (NW1, NW2).

26. A communication system which comprises at least a mobile terminal (MT1), a mobile network (NW1), at least one bearer service implemented in the mobile network (NW1), and means (4, 11, 201, 403, 405) for selecting a bearer service for communication between said mobile terminal (MT1) and said mobile network (NW1), **characterised** in that the system further comprises:

- means (CPU, MEM) for defining a set of requirements for the bearer service,
- means (CPU, MEM) for obtaining information about selectable bearer services,
- 5 – means (4, 11) for comparing said set of requirements for the bearer service and said obtained information about selectable bearer services, and
- means (4, MT1) for making a decision to accept or reject at least one of said selectable bearer services for communication based on said
- 10 comparison.

27. A communication system according to claim 26, in which system the mobile terminal (MT1) comprises means (CPU, MEM) for executing an application, **characterised** in that means (CPU, MEM) for defining a set of requirements for the bearer service comprises means (401) for defining said set of requirements for the bearer service at least on the basis of properties of said application.

28. A communication system according to claim 26 ~~or 27,~~ **characterised** in that means (CPU, MEM) for defining a set of requirements for the bearer service comprises means (402, 403) for defining said set of requirements for the bearer service at least on the basis of properties of the mobile terminal (MT1).

29. A communication system according to claim 26, ~~27 or 28,~~ in which the mobile terminal (MT1) comprises means (CPU, MEM) for executing an application, **characterised** in that the system comprises means (404, 405) for defining the bearer service at least on the basis of user preferences.

30. A communication system according to any of claims ²⁶~~26–29,~~ **characterised** in that the mobile network (NW1) comprises means for storing user subscription information, wherein the system comprises means (404, 405) for defining the bearer service at least on the basis of said user subscription information.

31. A communication system according to any of claims ²⁶~~26–30,~~ **characterised** in that traffic capacity of the mobile network (NW1) is

limited, wherein the means (CPU, MEM) for defining a set of requirements for the bearer service comprises means (1, 4, 5) for defining said set of requirements for the bearer service at least on the basis of traffic situation of the mobile network (NW1).

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32. A communication system according to any of claims ~~26-31~~²⁶, **characterised** in that the mobile network (NW1) comprises means for storing user subscription information, wherein the system comprises means (404, 405) for accepting or rejecting the bearer service at least on the basis of said user subscription information.

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33. A communication system according to any of claims ~~26-32~~²⁶, **characterised** in that traffic capacity of the mobile network (NW1) is limited, wherein the means (CPU, MEM) for accepting or rejecting a set of requirements for the bearer service comprises means (1, 4, 5) for defining said set of requirements for the bearer service at least on the basis of traffic situation of the mobile network (NW1).

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34. A communication system according to any of claims ~~26-33~~²⁶, **characterised** in that said means (4, 11) for comparing said set of requirements for the bearer service and said obtained information about selectable bearer services are formed in the mobile network (NW1).

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35. A communication system according to any of claims ~~26-34~~²⁶, **characterised** in that said means (4, 11) for comparing said set of requirements for the bearer service and said obtained information about selectable bearer services are formed in the mobile terminal (MT1).

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36. A communication system according to any of claims ~~26-35~~²⁶, **characterised** in that there is at least one quality of service class defined in the mobile network (NW1), that for at least one quality of service class there is defined at least one bearer service, and that for an application to be executed a preferred quality of service class is defined.

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37. A communication system according to any of claims ~~26-36~~,
characterised in that the mobile terminal (MT1) comprises:

- means (CPU) for forming a bearer service request network message on the basis of said set of requirements for the bearer service,
- 5 – means (RF) for sending said bearer service request network message to the mobile network (NW1),

and that the mobile network (NW1) comprises:

- means (4) for forming a bearer service reply network message on the basis of said selectable bearer services and said bearer service request network message, and
- 10 – means (2, 3) for sending said bearer service reply network message to the mobile terminal (MT1).

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38. A communication system according to any of claims ~~26-37~~,
15 **characterised** in that it comprises means for renegotiating a bearer service, wherein the mobile terminal (MT1) comprises:

- means (CPU) for defining a new set of requirements for the bearer service,
- means (CPU) for forming a bearer service request network message on the basis of the new set of requirements for the bearer service,
- 20 – and
- means (RF) for sending said bearer service request network message to the mobile network (NW1),

and that the mobile network (NW1) comprises:

- 25 – means for forming a bearer service reply network message on the basis of said bearer service request network message, and
- means for sending said bearer service reply network message to the mobile terminal (MT1).
- wherein the mobile terminal (MT1) further comprises means (4) for
- 30 making a decision to accept or reject at least one of said selectable bearer services for communication based on said comparison.

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39. A communication system according to any of claims ~~26-38~~,
35 **characterised** in that it comprises means for renegotiating a bearer service, when conditions of the mobile network (NW1) have changed, wherein the mobile network (NW1) further comprises:

- means for forming a conditions changed network message on the basis of the changed conditions, in which network message a new bearer service is suggested, and

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- means for sending said conditions changed network message to the mobile terminal (MT1),

and the mobile terminal (MT1) further comprises:

- means for examining said conditions changed network message,
- means for accepting the change of the bearer service, if said new bearer service fulfils said set of requirements for a bearer service, wherein the communication between said mobile terminal (MT1) and said mobile network (NW1) in connection with execution of said application is continued with said new bearer service, and
- means for rejecting the change of the bearer service, if said new bearer service does not fulfil said set of requirements for a bearer service, wherein the communication between said mobile terminal (MT1) and said mobile network (NW1) in connection with execution of said application is stopped.

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40. A communication system according to any of claims ²⁶~~26-39~~, **characterised** in that the mobile terminal (MT1) comprises an execution environment and a bearer service selection application programming interface (401), and that said selection application programming interface is used in communication between at least one application and said execution environment.

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41. A communication system according to any of claims ²⁶~~26-40~~, **characterised** in that the mobile terminal (MT1) comprises means for informing the user of the selectable bearer services, and means for selecting the bearer service by the user.

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42. A mobile terminal (MT1) for use in a communication system which comprises at least a mobile network (NW1), at least one bearer service implemented in the mobile network (NW1), and means (4, 11, 201, 403, 405) for selecting a bearer service for communication between said mobile terminal (MT1) and said mobile network (NW1), **characterised** in that the mobile terminal (MT1) further comprises means (CPU, MEM) for defining a set of requirements for the bearer service.

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43. A mobile terminal (MT1) according to claim 42, **characterised** in that it comprises means for defining said set of requirements for the bearer service to be selected for communication at least on the basis of properties of an application.

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44. A mobile terminal (MT1) according to claim 42 ~~or 43~~, **characterised** in that it comprises means for defining said set of requirements for the bearer service to be selected for communication at least on the basis of properties of the mobile terminal (MT1).

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45. A mobile terminal (MT1) according to claim 42, ~~43 or 44~~, **characterised** in that it comprises means for defining said set of requirements for the bearer service to be selected for communication at least on the basis of user preferences.

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46. A mobile terminal (MT1) according to claim 42, ~~43, 44 or 45~~, **characterised** in that it comprises means for obtaining information about selectable bearer services in the mobile network (NW1), and means for comparing said set of requirements for the bearer service and said obtained information about selectable bearer services.

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47. A mobile terminal (MT1) according to claim 42, ~~43, 44, 45 or 46~~, **characterised** in that it comprises an execution environment (202) for executing applications.

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48. A bearer selection application interface (BSSAPI) for use in a communication system which comprises at least a mobile network (NW1), at least one bearer service implemented in the mobile network (NW1), and means (4, 11, 201, 403, 405) for selecting a bearer service for communication between a mobile terminal (MT1) and said mobile network (NW1), and said mobile terminal (MT1) comprises an execution environment (202) for executing applications, **characterised** in that the bearer selection application interface (BSSAPI) is arranged to transfer information between at least one application and said execution environment for defining a set of requirements for the bearer service.

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